

# ASTHMA & ENVIRONMENTAL HEALTH



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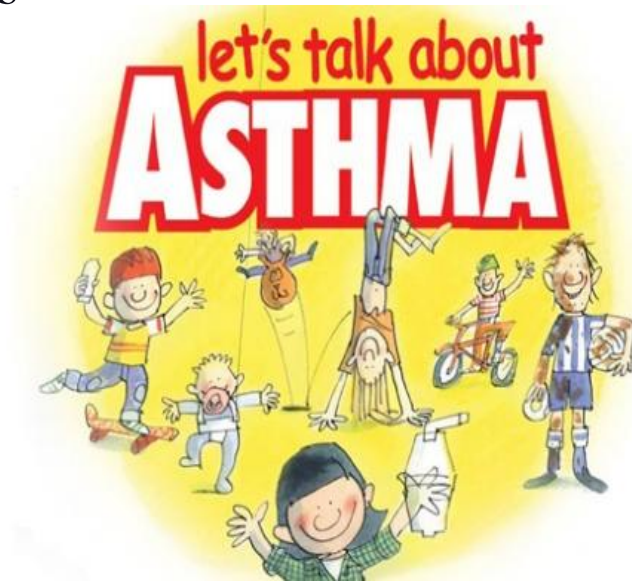
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317.234.7633

# WHAT IS ASTHMA?

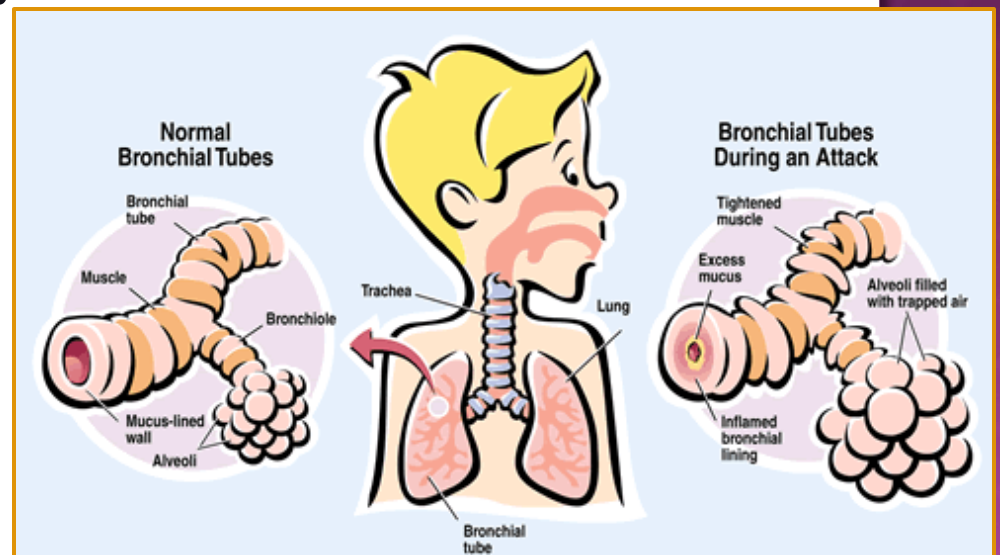
A condition that:

- is chronic- it is the leading serious chronic disease among children. Why?
- produces recurring episodes of breathing problems
- is potentially life-threatening
- can occur at any age
- is not contagious
- cannot be cured, but can be controlled

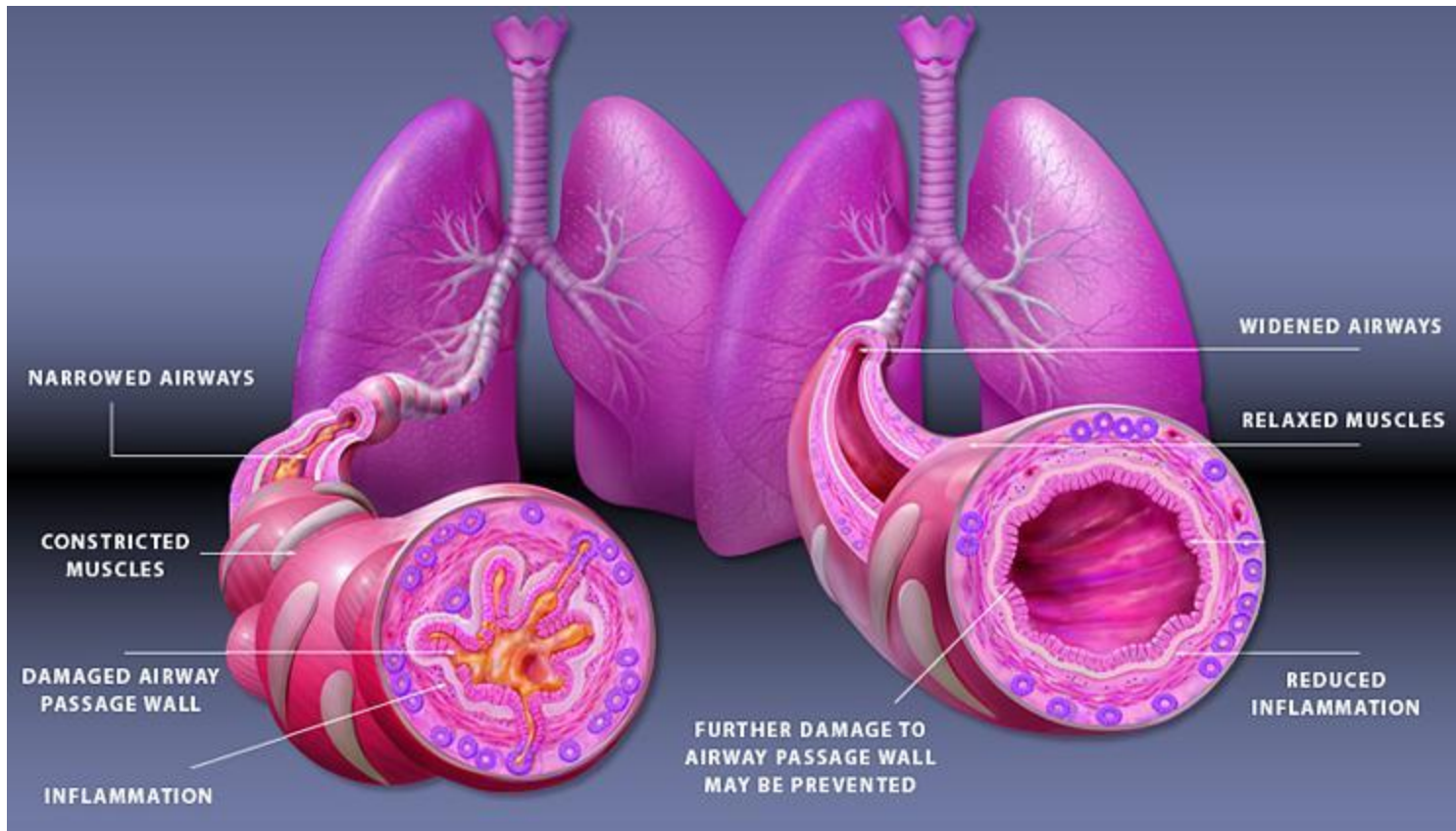


# WHAT HAPPENS DURING AN ASTHMA ATTACK?

- The lining of the airways become narrow and easily irritated due to inflammation
- The airways produce a thick mucus
- The muscles around the airways tighten and make airways narrower



# ASTHMATIC LUNGS



# WHAT ARE THE SYMPTOMS OF ASTHMA?



- Shortness of breath
- Wheezing
- Tightness in the chest
- Coughing



# ASTHMA STATS & COSTS

## NATIONALLY

- Currently affects 25 million Americans
  - 6.8 million are children (9.3%)*

NHIS, CDC 2012

## INDIANA (CDC 2012)

- 440,000 adults (9.1%) currently have asthma
- 150,000 children (9.5%) currently have asthma

BRFSS, CDC 2011



# ASTHMA STATS & COSTS



## NATIONALLY

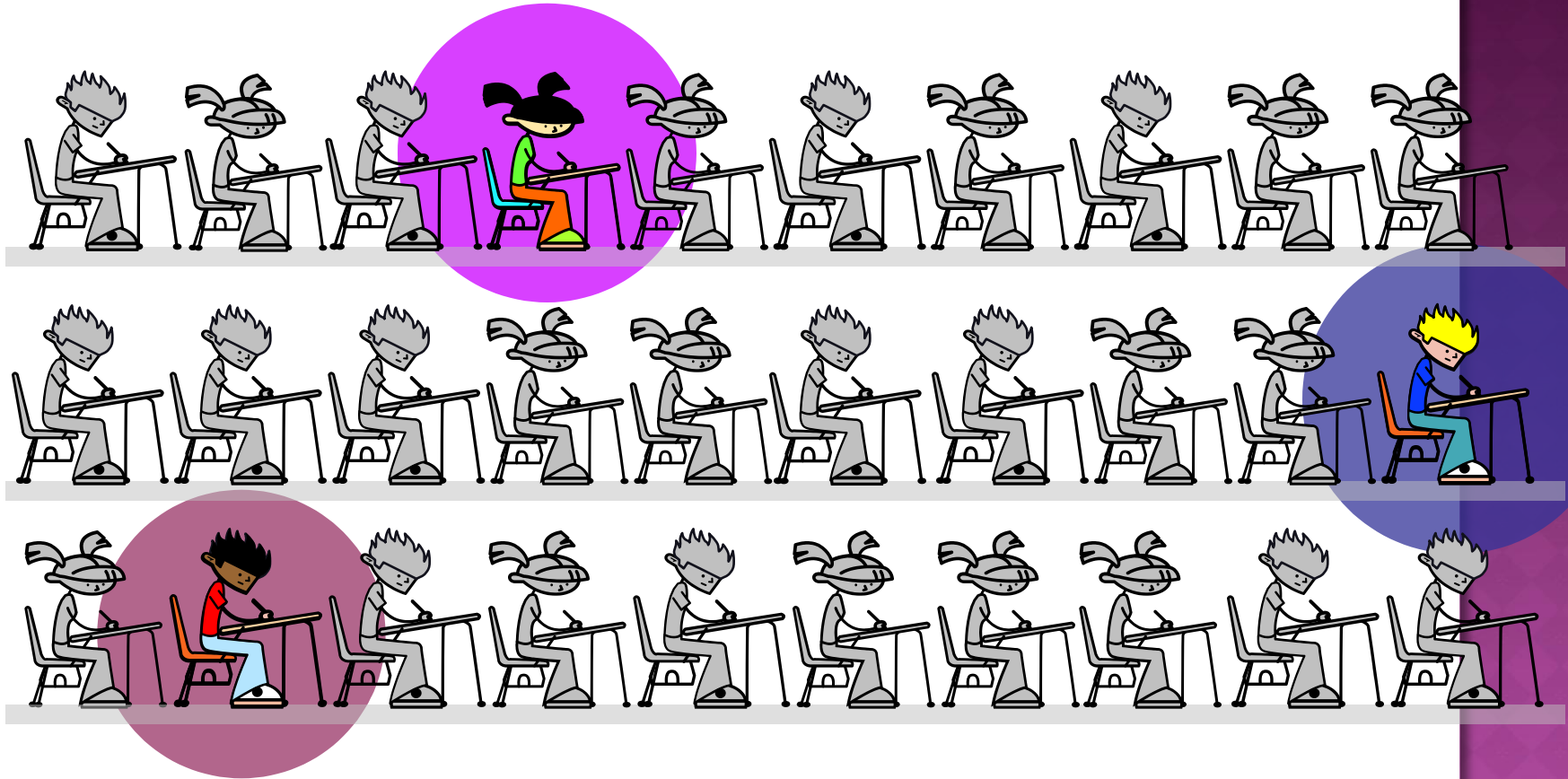
- ◉ 1.8 million ED visits\*
- ◉ 439,000 hospitalizations\*
- ◉ 3,404 deaths (2010 CDC)
- ◉ Estimated 10.5 million lost school days in children and 14.2 million lost work days for adults
- ◉ Costs U.S. \$56 billion in healthcare costs, lost school and work days, and early deaths

\* With asthma as primary diagnosis (NHIS, 2012 CDC)

## INDIANA (2012 ISDH)

- ◉ 30,570 ED visits
- ◉ 7,707 hospitalizations
- ◉ 73 deaths

On average, 3 children in a class of 30



are likely to have asthma.<sup>4</sup>



# HOW DOES UNCONTROLLED ASTHMA EFFECT PEOPLE AT SCHOOL AND WORK?

- Fatigue – asthmatics are up at night with coughing, wheezing and other symptoms are tired in the morning
- Absenteeism related to asthma episodes, health care appointments, and hospitalizations



"It's the toxic learning environment."

# POPULATION DISPARITIES IN ASTHMA

- Nationally, current asthma prevalence is higher among
  - children than adults
  - boys than girls\*
  - women than men
- Asthma morbidity and mortality is higher among
  - African Americans than Caucasians



\*In Indiana, more girls than boys currently have asthma.

# IS THERE A CURE FOR ASTHMA?

Asthma cannot be cured, but it can be controlled.

Most young people with asthma should be able to live healthy, active lives with minimal symptoms.



# HOW IS ASTHMA CONTROLLED?



- Follow an individualized, written asthma action plan\*\*
- Reduce or eliminate exposure to things that can cause asthma symptoms
- Encourage and support use of medication as prescribed
  - Quick-relief medicine for all students with asthma
  - Long-term control medicine for students with persistent asthma

# WHY THE ATTENTION TO IAQ IN SCHOOLS?

## ◎ Conditions of US Schools

### ■ GAO reports

- over 1/2 of our nations schools have IAQ problems

## ◎ Increase in Childhood Illnesses, especially asthma

### ■ Absenteeism\*\*

## ◎ Educational Systems Interest

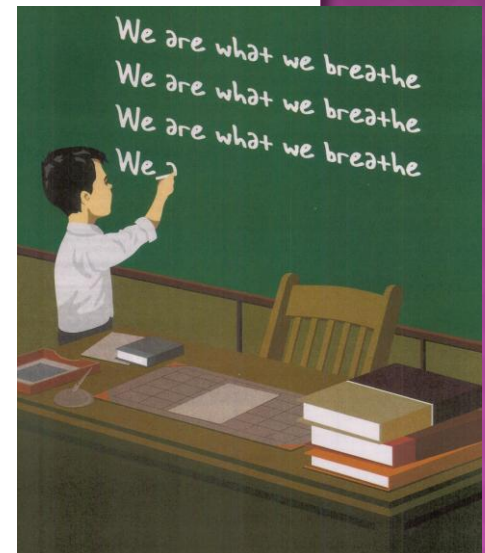
### ■ Attendance, performance & staff complaints





# THE LINK BETWEEN INDOOR AIR QUALITY AND ASTHMA

- Asthma prevalence has been associated with higher relative air humidity, higher concentrations of volatile organic compounds (VOC's), pests and mold or bacteria.
- Many asthma triggers are found in the school environment, including:
  - Dust mites found in carpeting, upholstery, stuffed animals, and other cloth/fabric
  - Animal dander
  - Cockroaches
  - Mold



# Why does Air Quality Matter?

- Americans spend about 90 percent of their day indoors in classrooms, in offices, at home.
- Pollution indoors is two to five times- and occasionally more than 100 times- higher than outdoor levels.
- When compared to other threats to human health, the EPA, its Science Advisory Board and others consistently rank indoor air pollution among the top four environmental risks facing Americans.



# EXPOSURES ARE EVERYWHERE!

- ◉ Home
- ◉ School
- ◉ Work
- ◉ Outdoors
- ◉ Leisure
- ◉ Etc., etc., etc.





*What indoor triggers do you see?*



# EXAMPLES OF SOME ASTHMA TRIGGERS





# SOURCES OF POLLUTANTS

## Outdoor Sources

- Outdoor Air
  - Pollens, molds, dusts
  - Industrial emissions
  - Vehicle emissions/Loading docks
  - Odors from dumpsters
- Underground sources
  - Radon\*
  - Pesticides



"See, son? Daddy's company makes inhalers to help people with asthma."

## Building Equipment

- HVAC Equipment
  - Microbial activity in pans, coils, ductwork, humidifiers, etc.
  - Improper venting of combustion products
  - Dust & fiberglass
- Non-HVAC Equipment
  - Office equipment & soft surface emissions
  - Emissions from labs, cleaning, etc.



# MORE SOURCES

## ○ Components/Furnishings

- Microbiological growth/water damage
- Asbestos
- Materials emitting VOCs
- Materials producing dust
- People



## ○ “Other”

- Fragrance
- Smoking
- Cleaning Products
- Odors
- Pests & Pesticides
- Personal Care Products
- etc....



# BUILDING OCCUPANTS

## ⦿ Individual Sensitivities

- Allergic or Asthmatic individuals
- Chemically sensitive
- Immune compromised individuals
- Contact lens wearers

## ⦿ Vulnerable Populations

## ⦿ Occupants as sources and pathways:

- Breathing/carbon dioxide
- Pet dander
- Perfume
- Home furnishings
- Air fresheners



"That's a puffer. If you want to blow a house down, you'll also need a huffer."

# COMMONLY OBSERVED PROBLEMS BY INSPECTORS

## ◎ Housekeeping & Maintenance

- vacuuming habits
- soft materials
- allergens

## ◎ Lack of Ventilation

- lack of outdoor air
  - energy conservation
  - fan setting
- unit maintenance
- temperature control



# COMMON TRIGGERS FOUND IN SCHOOLS

## ◉ Dust producing items

- Cardboard
- Paper & Shredders
- Chalk
- Pencil shavings



## ◉ Soft furnishings

- Chairs
- Cubicles
- “Reading Areas”
- Stuffed animals
- Pillows
- Curtains



- ◉ Cleaning/Vacuuming
- ◉ Plants
- ◉ Water Issues
- ◉ Ventilation & Filtration
- ◉ Food & Beverages
  - Lead to pests
- ◉ Fragrances
  - Candles
  - Air fresheners
  - Cleaning products





# ASTHMA TEACHER RESOURCE CARDS

## Asthma Reference Card

### ASTHMA EMERGENCY

- Difficulty speaking full sentence
- Blue lips, nails or gums
- Severe cough
- Difficult and rapid breathing
- Chest, neck or throat retractions
- Flared nostrils



### TREATMENT

#### CALL 911, NOTIFY SCHOOL NURSE/PARENT

- Administer rescue medications as prescribed
- Stay calm, remain with child
- Encourage slow deep breaths



### MILD ASTHMA SYMPTOMS

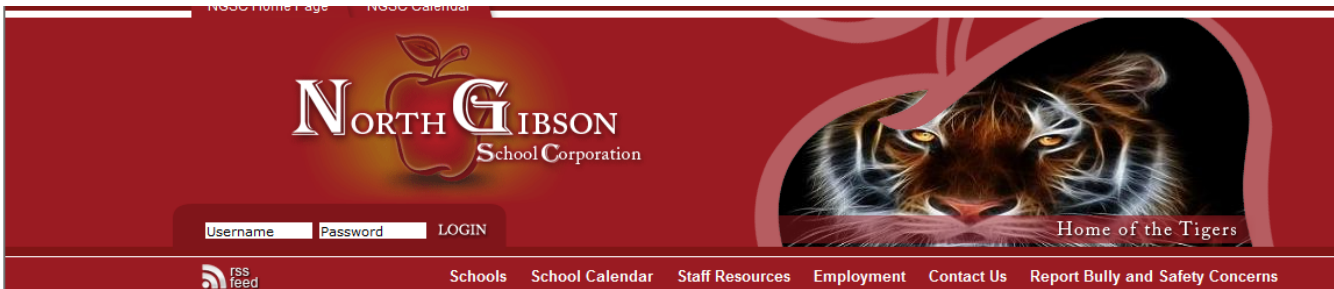
- Continuous cough
- Chest tightness
- Difficulty breathing
- Wheezing
- Restlessness, irritability



### TREATMENT

- Administer prescribed rescue inhaler
- Stay calm, remain with child
- Encourage slow deep breaths
- If improvement in 15min, then child may resume activities
- If no improvement in 15min, then **NOTIFY SCHOOL NURSE/ PARENT**

# CONTACT INFORMATION LISTING LOCATIONS:



Parent Links
District Office Staff Directory
Immunization Requirements
Homeless Student Services
<b>Indoor Air Quality (IAQ)</b>
2013-2014 IHSAA Physical Forms
Athletics/Activities Schedules
High Ability Information

« April 2014 »						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
30	31	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	1	2	3
4	5	6	7	8	9	10

Princeton, IN

Get the 10 day forecast

**63°F**  
Partly Cloudy

Feels Like: 63°F  
Humidity: 42%  
Wind: W at 12 mph

## Indoor Air Quality

The North Gibson School Corporation is committed to maintaining school grounds and facilities in a way that promotes good Indoor Air Quality (IAQ) for all students, staff, and visitors. The following Board policies were established to ensure good IAQ:

Animals in Classrooms – Policy 819  
Chemical Management – Policy 818  
Smoking and Other Tobacco Use – Policy 429  
Vehicle Idling – Policy 712

If you have any questions or concerns regarding IAQ, please contact NGSC's Indoor Air Quality Coordinator:

**Earl Spindler**  
**Facilities Director**  
**North Gibson School Corporation**  
1108 N. Embree St.  
Princeton, IN 47670  
Phone: 812-385-4851  
Email: [espindler@ngsc.k12.in.us](mailto:espindler@ngsc.k12.in.us)

**Rule 3. IAQ Coordinator**  
**410 IAC 33-3-1 Contact information**  
Sec. 1. (a) Schools and state agencies shall provide the IAQ coordinator's contact information to the following:

- (1) The state inspector during an inspection and upon request.
- (2) All:
  - (A) students;
  - (B) parents;
  - (C) employees; and
  - (D) visitors;
 during orientation, such as new hire, school, or visitor orientations.
- (b) The IAQ coordinator's contact information shall also be published:
  - (1) on the school or state agency's website; and
  - (2) in the school or state agency's handbook.

# IDOE LEARNING CONNECTION

<https://learningconnection.doe.in.gov/Login.aspx>

The screenshot shows a web browser window with the URL <https://learningconnection.doe.in.gov/UserGroup/MyGroups.aspx>. The page features a blue header with the 'LEARNING CONNECTION' logo and the tagline 'Providing data, resources and tools to support student achievement'. Below the header is a navigation bar with links: Dashboard, Classes, Library, Grade Book, Reports, Profile, and Contacts & Communities. The main content area is titled 'My Communities' and displays a list of communities. A purple oval highlights the 'IDOE - Indoor Air Quality' community, which has 333 members. Other communities listed include 'IDOE - Learning Connection' (76606 members), 'IDOE - School Nurses' (1108 members), and 'IDOE - School Safety Specialist Academy' (688 members). The footer contains copyright information for 2009 Indiana Department of Education and links for Help and Contact Support.

My Communities | The Lear... X

File Edit View Favorites Tools Help

Google idoe learning connection

Search Share Bookmarks Check Translate Auto

Page Safety Tools

**LEARNING CONNECTION**  
Providing data, resources and tools to support student achievement

Dashboard Classes Library Grade Book Reports Profile Contacts & Communities

My Contacts My Communities

All Communities

IDOE - Indoor Air Quality

IDOE - Learning Connection

IDOE - School Nurses

IDOE - School Safety Specialist Academy

+ Create new Community

**My Communities**

Now displaying 1-4 of 4

IDOE - Indoor Air Quality  
Group | 333 Members

IDOE - Learning Connection  
Group | 76606 Members

IDOE - School Nurses  
Group | 1108 Members

IDOE - School Safety Specialist Academy  
Group | 688 Members

Copyright © 2009 Indiana Department of Education | Help | Contact Support

# IAQ COMMUNITY



## IDOE - Indoor Air Quality

[Home](#)[Announcements](#)[Forums](#)[Files and Bookmarks](#)[Members](#)

### Files and Bookmarks

Search:

[Add Existing File](#)[Add New File](#)[Add Existing Bookmark](#)[Add New Bookmark](#)

Now displaying 1-11 of 11

	<a href="#">410 IAC 33.pdf</a> (59.16 KB) provided by <a href="#">Gary Green</a>	<a href="#">View Details</a>   <a href="#">Copy</a>
	<a href="#">Animals In Schools.pdf</a> (63.92 KB) provided by <a href="#">Gary Green</a>	<a href="#">View Details</a>   <a href="#">Copy</a>
	<a href="#">Chemicals in Schools.pdf</a> (143.28 KB) provided by <a href="#">Gary Green</a>	<a href="#">View Details</a>   <a href="#">Copy</a>
	<a href="#">Housekeeping.pdf</a> (54.17 KB) provided by <a href="#">Gary Green</a>	<a href="#">View Details</a>   <a href="#">Copy</a>
	<a href="#">HVAC.pdf</a> (102.06 KB) provided by <a href="#">Gary Green</a>	<a href="#">View Details</a>   <a href="#">Copy</a>
	<a href="#">IAQ Links for Schools.pdf</a> (8 KB) provided by <a href="#">Gary Green</a>	<a href="#">View Details</a>   <a href="#">Copy</a>
	<a href="#">Indoor Air Quality Coordinator.pdf</a> (65.8 KB) provided by <a href="#">Gary Green</a>	<a href="#">View Details</a>   <a href="#">Copy</a>
	<a href="#">Indoor Swimming Pools.pdf</a> (184.83 KB) provided by <a href="#">Gary Green</a>	<a href="#">View Details</a>   <a href="#">Copy</a>
	<a href="#">Mercury Spills.pdf</a> (908 KB) provided by <a href="#">Gary Green</a>	<a href="#">View Details</a>   <a href="#">Copy</a>
	<a href="#">Pesticides in Schools.pdf</a> (72.03 KB) provided by <a href="#">Gary Green</a>	<a href="#">View Details</a>   <a href="#">Copy</a>
	<a href="#">Vehicle Idling.pdf</a> (154.89 KB) provided by <a href="#">Gary Green</a>	<a href="#">View Details</a>   <a href="#">Copy</a>

The screenshot displays the Learning Connection website interface. At the top, a blue navigation bar contains the Learning Connection logo and the tagline "Providing data, resources and tools to support student achievement." To the right of the logo are links for "Inbox", "Calendar", "Help", and "Logout". Below the navigation bar is a horizontal menu with tabs: "Dashboard", "Classes", "Library", "Grade Book", "Reports", "Profile", and "Contacts & Communities". The main content area is titled "410 IAC 33" with a document icon. Below this title is a section labeled "FILE DETAILS" which contains the following information: File: [410 IAC 33.pdf](#) (59.16 KB), Description: (empty), Subject: (empty), Grade Level/Course: (empty), Created By: [Gary Green](#), Date Created: 7/6/2011, Last Modified By: [Gary Green](#), and Date Last Modified: 7/6/2011. Below the "FILE DETAILS" section is a section labeled "STANDARDS" which states "There are no standards selected." At the bottom of the main content area is a section labeled "COMMENTS" which is currently empty. The browser's address bar at the top shows the URL: https://learningconnection.doe.in.gov/Library/FilingCabinet/ViewFileDetail.aspx?Ifid=17699&et=USER\_GROUP&leid=1600&clid=&ret=%7e%2fUserGroup%2fGroupDetailFileBookmarks.aspx%3fgid%3d1600. The browser's taskbar at the bottom shows various application icons and the system clock indicating 9:56 AM on 6/25/2013.



## STAI School Bus Idling Policy

The Student Transportation Association of Indiana (STAI), working in partnership with the Indiana Department of Environmental Management has developed a school bus idling policy. For the health of our children, and to help improve air quality, STAI strongly urges its members to immediately implement this voluntary policy.

During morning start-up bus will idle no longer than the allowed time limits for the following temperatures:

- 32 degrees and above five (5) minutes
- 20 degrees to 32 degrees fifteen (15) minutes
- From 20 degrees and below, buses will be allowed to idle for up to thirty (30) minutes; or until front windows are defrosted and all safety equipment is operable.

Drivers will turn off engines after an appropriate cool-down time upon arriving at their destinations to load or unload students. This applies to home to school or field trip activity.

### We urge all member school districts to adhere to this policy for the following reasons:

Emissions from diesel engines are significant sources of toxics such as nitrogen oxides (NO<sub>x</sub>) and fine particulate matter (PM). Vehicle exhaust is linked to increased rates of cancer, heart and lung disease, asthma and allergies. Studies have concluded that emissions from vehicle exhaust are hazardous to human health, especially children. Children breathe more rapidly and inhale more pollutants per pound of body weight than adults. In addition to the health risks, NO<sub>x</sub> and PM also contribute to ozone, commonly referred to as "smog," that can be transported long distances, and affects an area's ability to meet the health standards for ambient air.

Emissions from idling school buses are emitted at ground level where children may inhale them or the emissions may be drawn into the school's ventilation system. Bus idling and bus queuing (back-to-front line-up of buses) also increases the concentrations of harmful particulate pollution inside school buses.

The elimination of air pollutant emissions is all of our responsibility and we all want to contribute to this important endeavor.

While we cannot control unnecessary idling by other motorists in and around our school parking lots, we can do our part to reduce emissions by instructing our drivers to turn off their buses as soon as they arrive at their destinations, and not to restart them until they are ready

**Online Services**  
FIRST IN LINE EVERY TIME

- Acronyms List
- Electronic Permitting / Regulatory Services Portal
- Enforcement Database
- Forms.IN.gov
- Impaired Waters (e303d)
- Online Air Permit Search
- Real-Time Monitoring
- Safe Drinking Water Information Search
- Virtual File Cabinet
- Wastewater Certification Renewal

**More Online Services »**  
**Subscriber Center »**

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- Twitter
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- Mobile

**Top FAQs** **I Want To...**

- How do I file an IDEM complaint?
- What should I do with my

# QUESTIONS OR COMMENTS?

